



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/597,610

06/09/2008

Eric Le Gall

1001-159

3775

25215 7590 05/20/2011  
DOBRUSIN & THENNISCH PC  
29 W LAWRENCE ST  
SUITE 210  
PONTIAC, MI 48342

EXAMINER

THOMPSON, CAMIE S

ART UNIT

PAPER NUMBER

1786

MAIL DATE

DELIVERY MODE

05/20/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/597,610	LE GALL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	CAMIE S. THOMPSON	1786	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Afterfinal response filed 4/25/2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 32-36, 40 and 42-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32-36, 40, 42-48 is/are rejected.
- 7) ☒ Claim(s) 39, 52 and 53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Examiner truly regrets the untimely reopening of prosecution and the early indication of allowable subject matter.
2. Applicant's amendment and accompanying remarks filed April 25, 2011 are acknowledged.
3. Examiner acknowledges amended claims 32, 39 and 46.
4. Examiner acknowledges cancelled claims 1-31, 37-38, 41 and 49-51.
5. The rejection of claims 32-37, 41-38 and 50-51 under 35 U.S.C. 103(a) as being unpatentable over FR2356509 is overcome by applicant's amendment.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claims 35 and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 35 and 48 are rendered indefinite because it is unclear as to what porous fibrous is. It is unclear if the claim should recite that the surface layers can be porous or fibrous or porous and fibrous.

Art Unit: 1786

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 32-36, 40 and 42-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR2356509 in view of JP 2963070.

The French reference discloses a sandwich structure comprising a core of plastic foam wherein on both sides of the core is a surface layer that can be a paper sheet, a fiber film or fabric of glass (see abstract). Additionally, the abstract of the French reference discloses that that thickness of the core is approximate 1 to 3 mm and the thickness of the surface layer(s) is 0.2 to 0.4 mm as required by present claims 32, 34-36, 41-45, and 47-48. The French reference also discloses that the core can comprise an epoxy foam resin with a density of 0.5 to 0.8 g/cm<sup>3</sup> as per instant claims 32-33 and 46 (see entire document). The reference also discloses that the surface layers can be a paper sheet, a metallic sheet or a resin impregnated sheet as per instant claims 32 and 46 (see entire document). The reference discloses that the sheets are impregnated, dried, superimposed and joined with the core under pressure and heating as per instant claims 50 and 51.

The French reference does not disclose the amount of epoxy resin present in the core. However, this is an optimizable feature. The French reference does disclose that the core must have increased mechanical strength. The French reference also discloses

Art Unit: 1786

that the core can comprise epoxy resin. The amount of epoxy resin in the core affects the rigidity and strength of the structure. Discovery of optimum values of a result effective variable involves only routine skill in the art *in re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art to have epoxy resin present in the core in the amount of 15-65 % by weight in order to have a laminate structure that has increased rigidity and strength.

The French reference does not disclose that the composite has a flexural modulus as measured by ASTM D790/ISO 178 from 200 mPa to 700 mPa. The reference discloses that the composite structure is to have increased mechanical properties and strength.

The flexural modulus can be optimized by optimizing the weight of the resin in the core as by applicant's admission. Therefore, it would have been obvious to one of ordinary skill in the art to have a composite that has a flexural modulus as measured by ASTM D790/ISO 178 from 200 mPa to 700 mPa in order to have a structure that has increased mechanical properties.

The French reference does not disclose that the surface layers are matching internal and external structures and are hollow box sections. The Japanese reference discloses a synthetic resin composite plate comprising a core material formed of a thermosetting foamed body with upper and lower surface layers that are comprised of hollow box sections formed from fiber reinforced plastic (see abstract and drawings). The hollow box sections for the surface layers affect the strength and rigidity of the composite by preventing cracks in the surface. Therefore, it would have been obvious to one of

Art Unit: 1786

ordinary skill in the art to have the surface layers of the French reference be hollow box sections in order to have a composite that has excellent strength and rigidity.

10. Claims 39 and 52-53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant claims a composite and a process for manufacturing a composite comprising at least two surface layers attached to a central layer of a rigid epoxy foam wherein the surface layers comprise hollow box structures or concentric tubes. The closest prior art, FR2356509, discloses a sandwich structure comprising a core of plastic foam wherein on both sides of the core is a surface layer that can be a paper sheet, a fiber film or fabric of glass. The French reference fails to teach that the surface layer(s) can comprise or concentric tubes.

### ***Response to Arguments***

11. Applicant's arguments with respect to the present claims have been considered but are moot in view of the new ground(s) of rejection. The Japanese reference was brought in to show that a composite structure with a foamed core and surface layers with hollow box sections affect the strength and rigidity of the composite by preventing cracks in the surface. The French and Japanese references are analogous. The combination is not without motivation.

Art Unit: 1786

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAMIE S. THOMPSON whose telephone number is (571)272-1530. The examiner can normally be reached on Monday-Friday 8:00 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Chriss can be reached on 571-272-7783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Camie S Thompson/  
Examiner, Art Unit 1786